

XII. THE REPTILES AND AMPHIBIANS OF THE ISLE OF PINES.

BY THOMAS BARBOUR.

(PLATE XXVIII.)

INTRODUCTORY.

This paper is based upon material from three sources: *First*, a very extensive and thorough collection made by Mr. G. A. Link of the Carnegie Museum during a long stay upon the island; unfortunately Mr. Link preserved his material in formalin, so that in many cases the condition of the specimens is far from being of the best. *Second*, an interesting series submitted to me by Dr. Leonhard Stejneger, collected by Messrs. Palmer and Riley at Nueva Gerona; this collection is not extensive, but is in an excellent state of preservation. *Third*, a series collected by Winthrop S. Brooks, Señor V. J. Rodriguez, and myself during a short visit to the Isle of Pines in March, 1915. Upon this occasion the weather was favorable and we obtained a large number of different species of reptiles, our efforts being to procure as many species as possible in a short time, without attempting to secure very many individuals, and especially to get some notes upon the colors in life of certain of the species, notably those of the genus *Anolis*, for in some of these creatures the colors in life have considerable taxonomic importance.

The Isle of Pines lies about sixty miles south of the Province of Havana, Western Cuba, and may be reached by proceeding to Batabanó by rail, and then taking a small steamer, which brings one after a delightful night's sail to either the port of Jucaro or Nueva Gerona, the capital. The island is roughly thirty by forty miles in extent, about the size of the State of Rhode Island, containing some twelve hundred and fifty square miles. It is divided into two parts by a large swamp "La Cienaga." I quote in this connection from Mr. Zappey's field notes, given in "The Birds of the Isle of Pines" by Bangs and Zappey (*American Naturalist*, Vol. XXXIX, 1905, p. 182):

"The land south of the Cienaga is of coral formation with a very shallow soil spread over the coral rock, and with deep holes or pits

everywhere. A number of prints of fossil shells of various kinds are observed in the coral rock. Fires devastate this part of the island, burning up the soil and the very roots of the trees, and leaving nothing behind but the bare coral rock, and the region is very sparsely inhabited. The trees of this region are mostly hard wood, there being no pines and very few royal palms."

The country north of the Cienaga is entirely different. It consists mostly of dry open pine-woods, interspersed with groves of royal palms and with dense jungly vegetation along the water-courses. There are great areas of savanna land, upon which even the palm-trees will not grow. In general, the country is extremely infertile, and may only be compared with similar areas in the Province of Pinar del Rio in Cuba, where like conditions obtain. There are a number of hills, most of which are composed of metamorphosed igneous rock, much weathered and eroded, while near Nueva Gerona there are two parallel chains of limestone hills, one, called the Sierra de Casas, lying to the west of the river on which the town is situated, and the other the Sierra de Caballos, lying to the eastward. The Sierra de Casas does not reach the sea, but the other Sierra, after extending some miles through the savanna country, reappears after a short break and pushes out to the north coast, where it ends in a bold, precipitous headland. This detached extension of the Sierra de Caballos is known locally as "Calumpo," a corruption of *Punta del Colombo*. The limestone in these hills is brilliant glistening white, of a beautiful quality, and much harder and more marble-like than I have seen in any of the limestone outcrops in Cuba from one end of the island to the other. The mountain-sides are clothed with dense, thorny scrub, and with scattered high woods wherever there may be sufficient soil, while the shores of the whole island, of course, are fringed with mangrove swamps, except where there are a few white sandy beaches. Most of our collecting was done from Nueva Gerona in the vicinity of the limestone mountains and in the savannas. Mr. Link worked principally in the region about Los Indios, a locality which allowed him access to the Cienaga and the region where the greatest variety of birds was to be obtained. So much for the topography of the island.

Its climate is excellent during the dry season, but the rains begin in May and last until October, and I am told that the face of the country is entirely changed, and that the moist conditions obtaining make life far less agreeable than during the winter months. Generally

speaking, the island is always healthy. In the past the hot springs at Santa Fé attracted many Cuban visitors, as the island, of course, since its discovery has been a dependency of the government of Havana. After the Spanish-American war, a few Americans found their way there, and persuaded themselves that the island was to be retained by the United States. This rumor spread, and speculators in land soon arrived. "Land-booms" followed, and farms and citrus-fruit plantations were sold in many localities. The result is that at present there is a large body of American residents, most of whom came to the island entirely untrained in tropical agriculture, and who purchased farms unsuited for the purpose for which they were sold. This has naturally resulted in disappointment and hardship. The local Cuban authorities proved to be most courteous, and helped us on the occasion of my visit in every possible way. The natives reside principally in Nueva Gerona and its environs, although there are scattered peasants living throughout the island, who will always be found to offer the wayfaring naturalist a charming and courteous, if humble, hospitality.

LIST OF THE SPECIES.

1. *Crocodylus americanus* (Laurenti).

The *Caiman*, as it is called by the Spanish-speaking inhabitants of both Cuba and the Isle of Pines, is common in all the salt water estuaries and chief river-mouths of the island. This species does not often push its way up into fresh water, but prefers the lagoons and ponds among the mangroves, where the water is salt or strongly brackish. A specimen about four feet long obtained by Mr. Zappey, shows, as one would expect, that this species is identical with the typical form of this widely ranging creature, which occurs from Florida, through the Greater Antilles, along the coasts of Mexico and Central America, and, reappearing on the Pacific Coast, extends from Southern Mexico to Ecuador. Its habits are astonishingly similar throughout its whole range, and the species is like the old world *Crocodylus porosus* in its liking for salt water.

2. *Crocodylus rhombifer* Cuvier.

I have not seen a specimen of this species from the Isle of Pines. The Cubans, however, are well aware of its existence and call it invariably *Cocodrilo*, in contradistinction to the Caiman. I have long

been familiar with the habits of this species in the great Cienaga de Zapata in Cuba. Here it is extremely abundant and entirely confined to the fresh-water swamps. Gundlach, on his visit to the Isle of Pines, reported that it was abundant there in the Cienaga. It has apparently remained so until the present time.

3. ***Pseudemys palustris*** (Gmelin).

The *Jicotea*, as the Spanish-speaking creoles call this turtle, is abundant on the Isle of Pines, but less so than in Cuba, except perhaps in the ponds of the Cienaga, where it is said to be very common. In Cuba, especially at Manzanillo, it is esteemed a great delicacy, but I did not observe that they were regularly hunted in the Isle of Pines as they are in Cuba, where the waters of the Rio Cauto supply many to the markets of the neighboring cities and towns. Mr. Link's series was obtained at Los Indios, while Brooks, Rodriguez, and myself procured others in the streams about the Sierra de Casas.

4. ***Sphærodactylus notatus*** Baird.

Brooks, Rodriguez, and myself were the only ones fortunate enough to have found this species in the Isle of Pines. We secured four specimens in the Sierra de Casas, while grubbing about among dead leaves and scratching up the ground under the heaps of rock at the foot of the cliffs of the Sierra de Casas. We were finding living specimens of the genus of land shells, *Megalomastoma*, and found these four little lizards in the same places as the shells. I have compared these with examples from the Bahamas, Key West, and many localities in Cuba; all are the same. Another Cuban species of the genus *Sphærodactylus*, viz. *S. nigropunctatus*, is so far unreported from the Isle of Pines, which is perhaps not strange, as in Cuba this form is principally, if not wholly, confined to the Eastern province, Oriente.

5. ***Sphærodactylus elegans*** Reinhardt & Lütken.

While I think it is generally true that individuals from the Isle of Pines representing this species are inclined to be a little less brilliant in color and to have rather narrower dark cross-bands than those from Cuba, I find too great a variability among the latter to make it at all probable that we are dealing with anything more than a slightly different average condition of individual variation. Mr. Link secured a series at Los Indios, while we found a few at Nueva Gerona. It

probably occurs all over the island, as it does in Cuba. One usually finds this tiny creature, perhaps the smallest of living reptiles, in old houses, behind furniture, on the wall behind pictures, and in similar situations. The islanders called it simply *Salamanquita*, using the same name for the other species of the genus. The Cuban peasants for some reason, which I have never learned or guessed, call it *Salamanquita de la Virgen*.

6. *Sphærodactylus cinereus* Cocteau.

Link's series, and our own as well, shows that the representatives of *S. cinereus* from the Isle of Pines are absolutely the same as examples from Cuba. This is another species, which I think is encountered in houses, decidedly more often than in the forest under bark or stones. The reverse is the case with *S. notatus*, which has not taken so kindly to human companionship. It is called *Salamanquita* and often *Salamanquesa*, although the latter name is in Cuba more correctly applied to *Tarentola*, a genus which is as yet unknown in the Isle of Pines.

7. *Anolis equestris* Merrem.

A careful comparison of a small series of the Giant Anolis secured by Link and specimens in the Museum of Comparative Zoölogy from different parts of Cuba has failed to reveal any character by which they may be separated. We did not secure an example of this species in the Isle of Pines, but we saw two, one in the Sierra de Casas, and one in the dense woods east of Colombo promontory. They were in dense foliage in tall trees and could not be reached by our small collecting guns, unfortunately the only arms we happened to have with us at the time. I imagine from what the Cuban school-master at Nueva Gerona and other well-informed persons told me, that this lizard is even less common in the Isle of Pines than in Cuba. In Cuba it is far from abundant, but may be found by careful searching in most of the extensive plantings of mango and other fruit-trees, which, of course, are not to be found in the vastly less fertile Isle of Pines.

8. *Anolis sagrei* Dumeril & Bibron.

This, the commonest species of the genus, is abundant throughout the island. My field-notes state that the skin of the dewlap is dull brick-red, the scales standing out as blackish, while the anterior edge

is lemon-yellow. On the whole, while I find many individuals which are not really typical, I cannot make up my mind to separate an Isle of Pines race.

9. *Anolis porcatus* Gray.

I have examined series of the common green Anolis in all the collections from the Isle of Pines and compared them carefully with Cuban examples, but I cannot find cause for separating them. In both of the localities the species is one of the commonest of reptiles about plantings in towns and cultivated gardens. In the woods and in uncultivated country the species is generally rare.

10. *Anolis homolechis* Cope.

This woodland Anolis, which is always so conspicuous in Cuba because of its brilliant ivory-white dewlap, is also found in the Isle of Pines, where it is by no means uncommon, especially in the narrow jungly zones along the many water-courses, which meander through the pine-barrens of the island. Although Cuban specimens have a tendency to have fewer, hence larger, scales between the frontal rugæ, this character is not sufficiently stable to separate the two groups of individuals into races.

11. *Anolis angusticeps* Hallowell.

With this little-known species I am able to identify a series of lizards in each of the three collections from the Isle of Pines. These specimens are the same as others from Guane, Province of Pinar del Rio, Cuba. In life the specimens which I myself took had a dewlap tinted with peach-blow pink. They varied from ashy gray to light gray greenish in coloration. All were found on the trunks of royal palm-trees, which grow along the road-sides near Nueva Gerona. The species is much more abundant in the Isle of Pines than in Cuba.

12. *Anolis alutaceus* Cope.

I have seen but two specimens of this species from the Isle of Pines. They are U. S. Nat. Mus. Nos. 27916-17, Nueva Gerona, Palmer and Riley, collectors. These individuals I have compared with one of the types of Cope's *A. alutaceus* (Mus. Comp. Zool. No. 10932) and with a large series of fresh Cuban examples from various points. At first I thought that the Isle of Pines lizards had more pronounced vermiculate rugosities on the head-shields, until I found a few from

the Sierra Maestra equally rugose. There seem to be more canthal scales in the lizards from the Isle of Pines, but this character is not a fixed one in Cuban specimens. I do not really feel able specifically to separate the two groups of individuals, in spite of a distinct feeling that in general these creatures impress one in a perfectly inexpressible way as being different.

13. *Norops ophiolepis* (Cope).

The grass-lizard of the Isle of Pines seems to be absolutely the same as the one found in Cuba, as far as scutation goes. In color it seems to be rather more brilliant, the mid-dorsal stripe extending a little further forward on the region of the nape. In general the size is distinctly larger. Mr. Link obtained a large series of this lizard at Los Indios, while Brooks, Rodriguez, and I found it abundant and obtained a number of specimens in the open-plains country near Nueva Gerona, where there was abundant bunch-grass. It is a lizard which lives entirely in the grass, never being found in even the lowest bushes.

14. *Cyclura macleayi* Gray.

The iguana is common upon the Isle of Pines, and is usually to be found in the scrub on the flanks of the Sierras and in the savannas about the coasts. Here the tracks may often be seen in the sand. We did not see tracks nor specimens, nor did we hear of its occurring in the pine-barrens. As Mr. Link's collection contained a fine series of these bulky creatures, and as our stock of alcohol and containers was somewhat limited, we preserved no iguanas. A study of Link's series enables me to state, that, although there are a few characters which usually appear to be slightly different from those in the Cuban representatives, the individual variation is nevertheless too great to make it wise to recognize two races.

15. *Leiocephalus carinatus* Gray.

This lizard, which has been aptly termed the "lion-lizard" by some of the English-speaking colonists in the Bahamas, and which is usually called by the Spaniards *Raborocado* or *Perico*, is found abundantly about the cliffs near the sea-shore in the Isle of Pines, as in Cuba. I do not believe that individuals from the two localities are specifically separable.

16. ***Leiocephalus cubensis*** Gray.

Dr. Stejneger has kindly informed me that he believes that this name proposed by Gray (Ann. Mag. Nat. Hist., Vol. V, 1840, p. 110) should supersede *L. vittatus* Hallowell, which is the name in current use and the one used by Boulenger in the "Catalogue of Lizards in the British Museum" (Part II, 1885, p. 163). Hallowell's name did not appear until 1856. We frequently met with this lizard in the open savannas in various parts of the island and procured a series of specimens, as did also Mr. Link. They seemed to average decidedly smaller in size than the Cuban specimens, and seemed in general to be of a sandier, more bleached-out color, often lacking the rich maroon on the sides of the head and body, which is usually conspicuous in the Cuban specimens. Still I can find no characters of squamation which seem to be sufficiently fixed to justify me in describing the race from the Isle of Pines as distinct.

17. ***Ameiva auberi*** Cocteau.

The ground-lizard of the Isle of Pines seems to be absolutely identical with that of Cuba. It is fairly abundant and is represented by specimens in Link's collection from Los Indios and in our own from Nueva Gerona and various other localities near by. It is found in open, arid savannas, in the pine-woods, in the plant-association of the beach-grape near the shores, and more sparingly in the scrub, which clothes the precipitous slopes of the two parallel limestone mountain-ranges. In common with so many other species of this family the food of *Ameiva auberi* consists largely of ants, and it is no uncommon sight to see them digging into the craters of ant-nests or crawling noisily about among the dried giant beach-grape leaves, which always seem to be swarming with ants.

18. ***Epicrates angulifer*** (Bibron).

The big boa, for some reason or other always known to the natives as *Maja de Santa Maria*, is even more abundant on the Isle of Pines than in Cuba, though its habits seem to be entirely the same in both places and it apparently occurs in the same sort of country. I have been unable to observe that there is any difference between individuals from the two localities.

19. ***Tropidophis pardalis*** (Gundlach).

Mr. Link secured a series of this species at Los Indios. There is apparently no difference between these specimens and a large series

from various parts of Cuba and the Bahama Islands. The species is largely nocturnal, like so many Boides, and is singularly harmless and inoffensive. There is no distinctive Spanish name for these snakes; we have usually applied to them the names "*majasitas*," "*jubitos*" or similar diminutives. In the Bahamas the "conchs" call them "Thunder-snakes," since they appear so frequently after rain-storms, drowned out from their subterranean hiding-places.

20. *Alsophis angulifer* (Bibron).

Unfortunately our party did not meet with this species upon the island. Mr. Link secured a series, but they have become so darkened through faulty preservation that it is impossible to say whether a separation should be made on the same sort of characters as those which serve to distinguish so sharply the insular *Leimadophis* from the Cuban.

21. *Leimadophis nebulatus* sp. nov. (Pl. XXVIII, figs. 1-2.)

Type an adult male, Mus. Comp. Zoöl., No. 11092, from the Sierra de Caballos, Isle of Pines, W. I., collected March, 1915, by Barbour, Brooks, and Rodriguez. Paratypes in Carnegie Museum, Nos. 302 to 308 and 1535; G. A. Link, collector.

This form does not differ from *L. andreae* of Cuba in squamation, but it does differ regularly and definitely in color-pattern. I have sufficient material to show that this character is really diagnostic, as is not always the case in reptiles.

In the type the lateral boundary between the dark, almost black dorsal and the ivory-white ventral areas is not clearly defined, and there are irregular dark-centered rhombs of white extending up on the sides of the anterior part of the body, sometimes almost meeting at the mid-dorsal line. Along the sides are many irregular scattered white spots. The figures (*cf.* Plate XXVIII, figs. 1 and 2), show the details. In Cuban specimens there are no such extensive white markings, but only occasional scattered white dots or vertical or horizontal series of small dots, more often no white at all in the dark dorsal and lateral zones.

The specimens collected by Link at Los Indios show the same markings as the type, less strikingly, however, since they have been darkened in color by being preserved in too strong formalin.

As for variation in the Cuban species, I may say that the pattern is

equally fixed. (See Pl. XXVIII, figs. 3 and 4) Among twenty specimens only one shows any tendency toward the condition in *nebulatus*, and this is an old specimen, which came many years ago from Prof. Felipe Poey, and which served as one of the types of *Dromicus cubensis* Garman. It is not impossible that some correspondent of Poey, or perhaps even Gundlach himself, got the specimen in the Isle of Pines, and that it got mixed with Cuban material and sent here.

Seven Isle of Pines specimens average 143 for ventral scale-counts, while the same number of Cuban examples average 144. There is no greater difference in the average number of subcaudals, while the number of scale-rows is seventeen in all.

The specimen, which I have made the type, was found in dry scrub-country near the Sierra de Caballos. We recognized at first sight that it was far whiter in appearance than Cuban specimens. In Cuba *L. andreae* is a common snake, found in cultivated lands in wooded regions, under stones, burrowing in the ground. It is not as fond of wet swampy country as is *Alsophis angulifer*. The habits of *L. nebulatus* are probably just the same.

22. *Tretanorhinus insulæ-pinorum* sp. nov.

Type, an adult, Carnegie Museum No. 311, from Los Indios, Isle of Pines, W. I., collected by G. A. Link. Paratype, Mus. Comp. Zoöl., No. 11,190.

This species differs from the Cuban *T. variabilis* in having regularly twenty-one, instead of nineteen rows, of scales around the body. I have examined three examples taken by Link at Los Indios and found this condition common to all. The series of Cuban examples in the Museum of Comparative Zoölogy, consisting of one from the Rio Tana, near Manzanillo, one from San Diego de los Baños, four from Soledad, near Cienfuegos, and three from the Rio Cuyaguatete near Guane, all taken by the writer during various Cuban excursions, have nineteen rows of scales. There do not seem to be other differences in squamation and the color is the same, so far as one may judge from Mr. Link's material preserved in formalin.

This nocturnal water-snake is called *Catibo* in the Isle of Pines by the natives. This is the same name which is used in Western Cuba. The catibo leads a colorless existence, spending its daylight hours hidden beneath stones, roots, or drift-rubbish in some creek or brook. By night it fares forth a-hunting and if one follows along the water

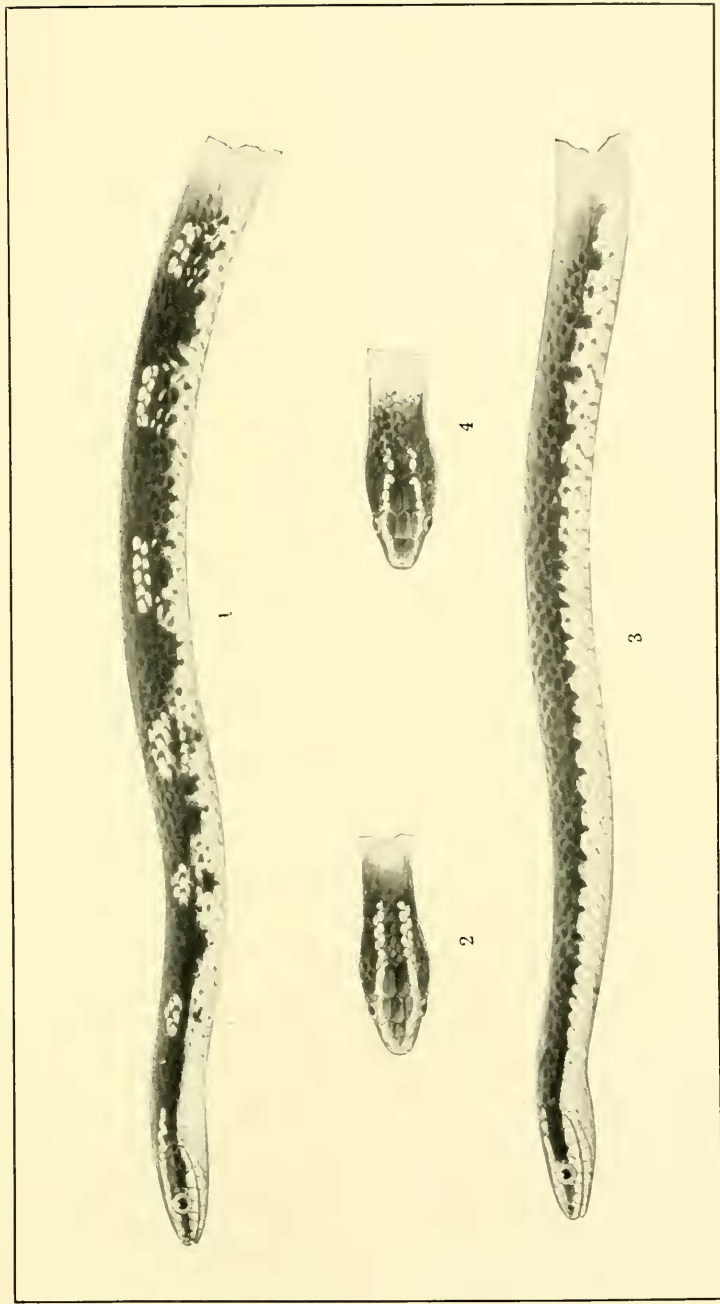


FIG. 1. Lateral view of anterior portion of type of *Leimadophis nebulatus*, sp. nov., Mus. Comp. Zoöl., No. 11,092.

FIG. 2. Top of head of No. 11,092, Mus. Comp. Zoöl.

FIG. 3. Lateral view of anterior portion of a specimen of *L. andreei*, Mus. Comp. Zoöl., No. 10,856, from S. Antonio de los Baños, Cuba.

FIG. 4. Top of head of No. 10,856, Mus. Comp. Zoöl.

